

In the Claims

1-13 (canceled)

14 (currently amended). A conductive immunopolymer matrix comprising:

a) a first immunopolymer layer comprising a polyheteroaromatic polymer and an Fc receptor entrapped within said polymer, wherein a first antibody is bound to said Fc receptor in said first polymer, ~~wherein the antigen-binding regions of said antibody are presented external to the surface of said first immunopolymer;~~ and

b) a second immunopolymer layer comprising a polyheteroaromatic polymer and an Fc receptor entrapped within said polymer, wherein a second antibody is bound to said Fc receptor in said second polymer and said second antibody binds to a determinant or antigen that said first antibody does not bind, ~~wherein the antigen-binding regions of said antibody are presented external to the surface of said second immunopolymer;~~ and

wherein said first and second ~~immunopolymers~~ immunopolymer layers further comprise a cell monitoring system, wherein said cell monitoring system comprises horseradish peroxidase and glucose oxidase ~~attached to or~~ entrapped within said first and second immunopolymers.

15 (currently amended). The conductive immunopolymer matrix according to claim 14, wherein said antibody bound to said Fc receptor of said first immunopolymer layer binds to a CD3, CD4, CD7, CD8, CD10, CD11b, CD14, CD19, CD20, or CD33 determinant.

16 (currently amended). The conductive immunopolymer matrix according to claim 14, wherein said antibody bound to said Fc receptor of said second immunopolymer layer binds to a CD34 determinant.

17 (currently amended). The conductive immunopolymer matrix according to claim 14, wherein said polyheteroaromatic polymer is ~~a~~ an alkyl substituted polythiophene or a polypyrrole.

18 (currently amended). The conductive immunopolymer matrix according to claim 14, wherein said polyheteroaromatic polymer is a naphthalene sulfonate-doped polypyrrole or a p-toluene sulfonate-doped polypyrrole.

19 (currently amended). The conductive immunopolymer matrix according to claim 14, wherein said ~~polyaromatic~~ polyheteroaromatic polymer has a net negative charge at the surface of said polymer.

20 (currently amended). The conductive immunopolymer matrix according to claim 14, wherein said conductive ~~polymer~~ immunopolymer matrix is provided in a capillary, spiral sheet, or parallel sheet.

21 (previously presented). The conductive immunopolymer matrix according to claim 14, wherein said Fc receptor specifically binds to the Fc portion of IgG antibody.

22 (canceled).

23 (currently amended). The conductive immunopolymer matrix according to claim 14, wherein said first and second immunopolymer layers are sequentially oriented with respect to each other.

24 (previously presented). The conductive immunopolymer matrix according to claim 14, wherein said first antibody binds to a determinant or antigen that is not expressed on a rare cell, and wherein said second antibody binds to a determinant or antigen that is expressed on a rare cell.

25 (previously presented). The conductive immunopolymer matrix according to claim 24, wherein said rare cell is a stem cell.

26 (currently amended). A conductive immunopolymer matrix comprising:

a) a first immunopolymer layer comprising a ~~polyaromatic-polyphenol~~ polymer and an Fc receptor entrapped within said polymer, wherein a first antibody is bound to said Fc receptor in said first polymer, ~~wherein the antigen-binding regions of said antibody are presented external to the surface of said first immunopolymer;~~ and

b) a second immunopolymer layer comprising a ~~polyaromatic-polyphenol~~ polymer and an Fc receptor entrapped within said polymer, wherein a second antibody is bound to said Fc receptor in said second polymer and said second antibody binds to a determinant or antigen that said first antibody does not bind, ~~wherein the antigen-binding regions of said antibody are presented external to the surface of said second immunopolymer;~~ and

wherein said first and second ~~immunopolymers~~ immunopolymer layers further comprise a cell monitoring system, wherein said cell monitoring system comprises horseradish peroxidase and glucose oxidase ~~attached to or~~ entrapped within said first and second immunopolymers.

27 (currently amended). The conductive immunopolymer matrix according to claim 26, wherein said antibody bound to said Fc receptor of said first immunopolymer layer binds to a CD3, CD4, CD7, CD8, CD10, CD11b, CD14, CD19, CD20, or CD33 determinant.

28 (currently amended). The conductive immunopolymer matrix according to claim 26, wherein said antibody bound to said Fc receptor of said second immunopolymer layer binds to a CD34 determinant.

29 (canceled).

30 (currently amended). The conductive immunopolymer matrix according to claim 26, wherein said ~~polyaromatic-polyphenol~~ polymer has a net negative charge at the surface of said polymer.

31 (currently amended). The conductive immunopolymer matrix according to claim 26, wherein said conductive ~~polymer~~ immunopolymer matrix is provided in a capillary, spiral sheet, or parallel sheet.

32 (previously presented). The conductive immunopolymer matrix according to claim 26, wherein said Fc receptor specifically binds to the Fc portion of IgG antibody.

33 (canceled).

34 (currently amended). The conductive immunopolymer matrix according to claim 26, wherein said first and second immunopolymer layers are sequentially oriented with respect to each other.

35 (previously presented). The conductive immunopolymer matrix according to claim 26, wherein said first antibody binds to a determinant or antigen that is not expressed on a rare cell, and wherein said second antibody binds to a determinant or antigen that is expressed on a rare cell.

36 (previously presented). The conductive immunopolymer matrix according to claim 35, wherein said rare cell is a stem cell.

37 (currently amended). A conductive immunopolymer matrix comprising a polymer and a molecule having binding specificity for a target molecule, wherein said polymer comprises a ~~polyaromatic~~ polyphenol polymer, and wherein said molecule having binding specificity for a target molecule is an Fc receptor and is entrapped within said polymer.

38 (canceled).

39 (currently amended). The conductive immunopolymer matrix according to claim 37, wherein an antibody is bound to said Fc receptor and the antigen-binding regions of said antibody are presented external to the surface of said conductive immunopolymer matrix.

40 (currently amended). The conductive immunopolymer matrix according to claim 37, wherein said polyphenol polymer has a net negative charge at the surface of said polymer.

41 (previously presented). The conductive immunopolymer matrix according to claim 39, wherein said antibody binds to a CD34 determinant.

42 (previously presented). The conductive immunopolymer matrix according to claim 39, wherein said antibody binds to a CD3, CD4, CD7, CD8, CD10, CD11b, CD14, CD19, CD20, or CD33 determinant.

43 (previously presented). The conductive immunopolymer matrix according to claim 37, wherein said conductive immunopolymer matrix is provided in a capillary, spiral sheet, or parallel sheet.

44 (currently amended). The conductive immunopolymer matrix according to claim 37, wherein said conductive immunopolymer matrix further comprises a cell monitoring system, wherein said cell monitoring system comprises horseradish peroxidase and glucose oxidase attached to or entrapped within said polymer.

45 (previously presented). The conductive immunopolymer matrix according to claim 37, wherein said conductive immunopolymer matrix comprises multiple layers of said polymer, and wherein a different antibody is bound to said Fc receptor in each of said layers.

46 (previously presented). The conductive immunopolymer matrix according to claim 37, wherein said Fc receptor specifically binds to the Fc portion of IgG antibody.

47 (canceled).

48 (currently amended). A conductive immunopolymer matrix comprising a polymer and a cell-free molecule having binding specificity for a target molecule, wherein said polymer comprises a polyheteroaromatic polymer, and wherein said molecule having binding specificity for a target molecule is an Fc receptor and is entrapped within said polymer.

49 (currently amended). The conductive immunopolymer matrix according to claim 48, wherein said polyheteroaromatic polymer is ~~a~~ an alkyl substituted polythiophene or a polypyrrole.

50 (currently amended). The conductive immunopolymer matrix according to claim 48, wherein said polyheteroaromatic polymer is a naphthalene sulfonate-doped polypyrrole or a p-toluene sulfonate-doped polypyrrole.

51 (previously presented). The conductive immunopolymer matrix according to claim 48, wherein said polymer has a net negative charge at the surface of said polymer.

52 (currently amended). The conductive immunopolymer matrix according to claim 48, wherein an antibody is bound to said Fc receptor ~~and the antigen-binding regions of said antibody are presented external to the surface of said conductive immunopolymer matrix.~~

53 (previously presented). The conductive immunopolymer matrix according to claim 52, wherein said antibody binds to a CD34 determinant.

54 (previously presented). The conductive immunopolymer matrix according to claim 52, wherein said antibody binds to a CD3, CD4, CD7, CD8, CD10, CD11b, CD14, CD19, CD20, or CD33 determinant.

55 (previously presented). The conductive immunopolymer matrix according to claim 48, wherein said conductive immunopolymer matrix is provided in a capillary, spiral sheet, or parallel sheet.

56 (currently amended). The conductive immunopolymer matrix according to claim 48, wherein said conductive immunopolymer matrix further comprises a cell monitoring system, wherein said cell monitoring system comprises horseradish peroxidase and glucose oxidase ~~attached to or~~ entrapped within said polymer.

57 (previously presented). The conductive immunopolymer matrix according to claim 48, wherein said conductive immunopolymer matrix comprises multiple layers of said polymer, and wherein a different antibody is bound to said Fc receptor in each of said layers.

58 (previously presented). The conductive immunopolymer matrix according to claim 48, wherein said Fc receptor specifically binds to the Fc portion of IgG antibody.

59 (canceled).